DETROIT PUBLIC LIBRARY

DEC 2 1 1964

TECHNOLOGY & SCIENCE

Writers of letters to the Editor, names of deceased members, and books reviewed are listed in separate appendixes and not in the main body of the index. Page numbers in **bold** type indicate the more detailed accounts of the entry, where applicable.

A

Accounts for 1963 240

A.C. traction, control of motor voltage in by E. A. K. Jarvis 160 Addresses

- Electronics Division, Chairman's, 1964-65: Summary of 398
- Power Division, Chairman's, 1964-65: Summary of 399
- Presidential (1964-65): Condensed version of 376 Adjustable frequency invertors and their application to variable-speed drives by D. A. Bradley, C. D.
- Clarke, R. M. Davis and D. A. Jones 389 Advantages of resistive earthing by D. Jones 347
- Adventure in the CEGB 139 Age limit for Students 326, 329
- Age-limit Graduates 220, 329
- Agu, L. A., and Lawrenson, P. J. Reluctance machines 264
- Air-traffic control, development of secondary surveillance radar for by D. G. Terrington 428
- Air-traffic control, new video-map system for 263
- Alexander, W. The ternary computer 36 American television, film transmission on 383 Amplifiers, varactor-diode parametric by F. J. Hyde 197
- Analysis of dynamic performance of induction motors in control systems by J. C. West, B. V. Jayawant and G. Williams 271
- Anglo-German telephone cable (new): Opening of 138
- Announcements to members 33, 62, 98, 137, 176, 216, 245, 294, 329, 374, 411, 456
- Annual Dinner: Report of 162
- Annual General Meeting 137, 230 Annual Report for 1963-64 232
- Appleton, Sir Edward. Graham Clark Lecture (10th),
- on The science of near space 140 Application of pulse-code modulation to speech training
- mission in civil networks by R. O. Carter 2 Appointments and nominations 34, 62, 137, 176, 374
- Arch motors, rotors for by E. R. Laithwaite 42
- Are engineers educated? 139 Arman, A. N., Cherry, D. M., Gosland, L., Hollingsworth, P.M., Milne, A. G., and Mochlinski, K. Influence of soil characteristics on h.v.-cable
- power ratings 87

Assault on the towers 331

Attenuation in rectangular waveguides by F. A. Benson and D. H. Steven 15

- Audio-visual teaching aids, conference on: Report of " 406
- Autodyne, the by O. Benedikt 224
- Automatic driving of electric trains by R. Dell and A. W. Manser 104
- Automatic gauge control of tandem cold-rolling mills by G. F. Bryant and M. H. Butterfield 20 Automatic land navigation system (new) 188
- Automatic production in electrical and electronic engineering, symposium on: Report of 26

- Automation and Computation, British Conference on: To be called United Kingdom Automation Council 22
- Automobile electrical equipment, some recent developments in by C. S. Rayner 432

Awasty, H. D. Railway electrification in India 111

B

- Backward diodes as microwave detectors by H. V. Shurmer 316
- Balancing the flow 99
- Barlow, H. E. M. Waveguide survey 332
- Barlow, H. E. M. Waveguides for power transmission and distribution 391
- Barlow, H. E. M., and Vuorinen, P. A. Waveguide structures for low-loss transmission around sharp bends in circular waveguide 22
- Barwell, F. T., and Laithwaite, E. R. Linear induction motors for high-speed railways 100
- Bason, P. T. Case coding 115
- Battery-electric car, future of the by B. S. Hender 250
- BEAMA Annual Report for 1963 137
- Beard (J. R.) Travelling Fund: Establishment of 326, 329
- Beck, H. V. Electronics design 443 Benedikt, O. The autodyne 224 Benevolent Fund, Incorporated

- Court of Governors 248
- Local Honorary Treasurers of 248, 418 Benjamin, R. Recent developments in radar modu-
- lation and processing techniques 435 Benson, F. A., and Steven, D. H. Attenuation in
- rectangular waveguides 15 Best 'buy', the 375 Bird, B. M. Measurement of stray load losses in squirrel-cage induction motors 400
- Bird, D. E., and Gaster, A. E. Electrical services at the Shell Centre 46
- Bird, J. F. Overseas service in developing countries 386
- Blue Streak at Woomera 34
- Boggis, J. G. Market research in electricity supply 425
- Boiler, dynamic optimisation of a by H. Nicholson 38
- Books (see Appendix C)
- Boon, C R., and Thompson, J. E. Rotational hysteresis loss in silicon-iron 124
- Booth, C. F. The Extraordinary Administrative Radio Conference 152
- Boyd, R. L. F. Satellite instrum entation 12
- Bradley, D. A., Clarke, C. D., Davis, R. M., and Jones, D. A. Adjustable frequency invertors and their application to variable-speed drives 389
- Brailsford, F. Theory of a ferromagnetic heat engine 314
- Bray, W. J. Design of communication-satellite systems 109
- British Conference on Automation and Computation: To be called United Kingdom Automation Council 22
- British Railways: Use of microwave radiotelephone link 223
- Brown (S. G.) medal and award: Establishment of 98 Bruce, C. E. R. Cosmic electric discharges 72

C

Cable-repair ship (new): Launching of 123

Bryant, G. F., and Butterfield, M. H. Auton

(see Wiring Regulations) 431

transmission 16

gauge control of tandem cold-rolling mills 20

Buildings, Regulations for Electrical Equipment of

Butterfield, M. H., and Bryant, G. F. Automatic

gauge control of tandem cold-rolling mills 20 Butterworth, J. S., Cullen, A. L., and Robson, P. N. Overmoded rectangular waveguide for high-power

- Cable system (first transistorised) 431
- Carter, R. O. Application of pulse-code modulation to speech transmission in civil networks 2

INDEX

Volume 10 1964

to Electronics & Power

Case coding by P. T. Bason 115 Cathode-ray tubes, colloquium on: Report of 325 Central Electricity Generating Board

- Adventure in the CEGB 139
- Annual report (1963-64) 388
- Effect of chimney emissions on health 431
- M.H.D. project (large-scale), plan for 282
- Pumped-storage investigations in North Devon
- Rail transport of coal to power stations 61 System control by computer in South Western
- Region 405 Waltham Cross underground cable: Completion of
- 378 Ceylon: Overseas Representative of the Council for
- 455 Challenge (the) of technological change by B. C. Roberts 309
- Changing pattern, the by Sir Albert Mumford 1

Character recognition by W. K. Taylor 6

- Character recognition by context-dependent transformations by D. M. Stern and D. W. C. Shen 440
- Cherry, D. M., Gosland, L., Hollingsworth, P. M., Milne, A. G., Mochlinski, K., and Arman, A. N. Influence of soil characteristics on h.v.-cable
- power ratings 87 Cherry, E. C. Report of 4th International Tele-traffic Congress 410

Circuit breakers, synthetic testing of: Report on 395 Cities like Venice 139

- Civil aviation, electronics research and development for: Report of conference on 28
- Clark (Graham) Lecture, 10th, by Sir Edward Appleton 140
- Clarke, C. D., Davis, R. M., Jones, D. A., and Bradley, D. A. Adjustable frequency invertors and their application to variable-speed drives 389 Clean air (CEGB report on) 431

Coal, rail transport of 61

Council, 1964-65 412

185

Coffee, R. A. Electrostatic spraying of liquids and powders 349 Colour performance of Secam, the by G. B. Townsend

Overseas Branches and Committees, 1964-65 417,

457

Committees of the Institution: Constitution

Divisional Boards, 1964-65 412

Local Centre, 1964-65 414 Miscellaneous, 1964-65 413

nwealth Engineering Conference: Admission Com of East African Institution of Engineers 71 transpacific cable Con wealth telephone

- COMPAC, the by R. J. Halsey 379 nunication networks, transmission aspects of:
- Report of conference on 287 Communication-satellite systems, design of by W. J. Bray 109

COMPAC: Opening of 5

- Computation and Automation, British Conference on: To be called United Kingdom Automation Council 22
- Computer control of steelworks production by J. T. Jones and N. J. Williams 182 Computer data by telephone 401
- nputer storage systems (high-speed), developments in by D. B. G. Edwards, M. J. Lanigan and D. J.
- Kinniment 319 Computer studies of power-system transient per-formance by J. L. Dineley 17
- Computer, system control by 405
- nputer (the) and the use we make of it by Sir Edward Playfair 205 Com Computers in control of processes by D. N. Truscott
- 199
- Conduit systems (prefabricated flexible): Provision for, in 14th edition of Wiring Regulations 62 Conferences
- Audio-visual teaching aids: Report of 406
- · Automation and Computation, British: To be called United Kingdom Automation Council 22
- · Commonwealth Engineering: Admission of East African Institution of Engineers 71 Dielectric and insulating materials: Report of 286
- Electronics research and development for civil aviation: Report of 28
- · Extraordinary Administrative Radio Conference (EARC): Report of, by C. F. Booth 152
- · Impact of the users' needs on the design of dataprocessing systems: Opening address at 205
- Laboratory equipment in engineering departments of technical colleges, design and use of : Report of 126
- · Microwave valves, design and use of: Report of 27
- · Transmission aspects of communication networks: Report of 287
- Congr ss on Teletraffic (4th International): Report of, by E. C. Cherry 410 Contactless components for remote control 343
- Context-dependent transformations, character
- nition by by D. M. Stern and D. W. C. Shen 440
- Control of m or voltage in a.c. traction by E. A. K. Jarvis 160
- Control systems, analysis of dynamic performance of action motors in by J. C. West, B. V. Jayawant ind and G. Williams 271
- Cooke-Yarborough, E. H., Gibbons, P. E., and Iredale, P. Proposed optoelectronic method of achieving very fast digital logic 339
- Cooper, A. R. Sebastian de Ferranti-pioneer of power 402
- Cosmic electric discharges by C. E. R. Bruce 72 Council of the Institution
- 1963-64: Constitution of 71, 246
- **1964–65:** Constitution of 294, 411, 412, 455 **Meetings of: Reports of** 22, 71, 170, 220, 326
- · New members of (1963-64 Session) 170 · Overseas Representatives of 22, 71, 248, 326, 418,
- 455
- · Representation of Divisional Boards on 455
- Creative laboratory work in technical teaching by E. J. P. May 10 Creed, Sir Thomas. Proposal of toast of the
- Institution at Annual Dinner 162 Croom, D. L. Natural background electromagnetic
- radiation at 1-10Gc/s 150 Culham Laboratory: Research at 283
- Cullen, A. L., Robson, P. N., and Butterworth, J. S. Overmoded rectangular waveguide for high-power
- transmission 16 'Current Papers': Publication of 324, 326
- Cylindrical waveguide, propagation coefficient of a by P. N. Robson 15

458

- Daresbury Nuclear Physics Laboratory: Construction of 75 Data link for tank gauging 270
- Davies, D. E. N. Electronic sector-scanning tech-
- niques for height-finding radar systems 368 Davies, M. W. Humphrey
- Biographical note of 358
- Davies, R. E., Manton, R. G., and Knight, P. H.F. arrays on hills 89
- Davis, R. M., Jones, D. A., Bradley, D. A., and Clarke, C. D. Adjustable frequency invertors and their application to variable-speed drives 389 D.C. amplifiers, recent advances in: Report of
- symposium on 57
- Delhi Overseas Committee: Appointment of chair-man of 220 Dell, R., and Manser, A. W. Automatic driving of
- electric trains 104 Denmark-UK cable: Opening of 401
- Derby Day '64 217
- Design of comm nunication-satellite systems by W. J. Bray 109
- Development of electrochemical machining techniques by B. H. Wilkinson and G. R. Stuart 420
- Development of secondary surveillance radar for airtraffic control by D. G. Terrington 428
- Development of superconducting magnets by W. F. Gauster 64
- Developments in high-speed computer storage systems by D. B. G. Edwards, M. J. Lanigan and D. J. Kinniment 319
- Dielectric and insulating materials, conference on: Report of 286
- Dineley, J. L. Computer studies of power-system transient performance 17
- Dineley, J. L., and Glover, K. J. Synchronousgenerator voltage saturation 79
- Dinner, Annual: Report of 162
- **Divisional Boards** · 1964-65: Constitution of 412
 - Representation on Council 455
- Divisional Chairmen's Addresses: Summaries of 398 Divisional structure in the local Centres 326
- Domestic and industrial heating: Report of sym-
- posium on 171 Douglas, A. Electrical synthesis of music 83
- Dragon in Dorset 419 DSIR
- Radio telescope (new): Building of 170
- Superconductivity research and development, programme of 348
- Dunsheath, P.
- · Honorary Membership:
- Election to 170 Profile of 169
- Dynamic optimisation of a boiler by H. Nicholson 384
- Dynamic performance of induction motors in control systems, analysis of by J. C. West, B. V. Jayawant and G. Williams 271

E

- East Africa Institution of Engineers: Admission to Commonwealth Engineering Conference 71
- East Midland Centre Education and Training Circle: Formation of 326
- Eastern Caribbean: Overseas Representative of the Council for 326
- Easton, V. Excitation of large turbogenerators 81 Education and training
- Design and use of laboratory equipment in the engineering departments of technical colleges, conference on: Report of 126
- Teaching industrial administration 63 · Technical teaching, creative laboratory work in by
- E. J. P. May 10 · University courses-a suitable education for the
- modern world? by D. B. Welbourn 51, 96 Edwards, D. B. G., Lanigan, M. J., and Kinniment,
- D. J. Developments in high-speed computer storage systems 319

Effect of weather on performance of an 8 mm r dar by O. Nourse and S. G. Nicholls 342 Elections and transfers 31, 60, 97, 138, 175, 213,

- 244, 293, 327, 453 Electric currents, magnetostatic field of by G. B.
- Walker 126 Electric power supplies (emergency) by Elsic F. Hansford 43
- Electric road heating by J. T. Sharples 189
- Electric thermal-storage heaters by Miriam V. Griffith 68
- Electric trains, automatic driving of by R. Dell and A. W. Manser 104
- Electrical and electronic engineering, automatic production in: Report of symposium on 26
- Electrical conduction in high-temperature gases by D. W. George 317
- Electrical energy, proportional-demand metering of by H. J. Lovegrove 300
- Electrical engineering in the Royal Navy 321
- Electrical engineering, medical and biological applications of by Ronald Woolmer 178 Electrical Equipment of Ships, Committee on Regu-
- lations for the: Change in structure of 245
- Electrical-machine theory, improved approach to by A. J. Ellison 366 Electrical machines, unified theory of by S. A. Nasar
- 194 Electrical Research Association: Report of work
- during 1963 270 Electrical synthesis of music by A. Douglas 83 Electricity in fisheries, underwater observations and

Electricity in the service of road-traffic control by

Electricity supply, market research in by J. G. Boggis

Electrochemical machining techniques, development of

Electromagnetic radiation (natural background) at 1-10Gc/s by D. L. Croom 150

Electron gun, electrostatically focused, for hollow beams by H. L. Hartnagel 21

Electronic line-standards convertor, an by P. Rainger

finding radar systems by D. E. N. Davies 368

· Cathode-ray tubes, colloquium on: Report of

. D.C. amplifiers, recent advances in: Report of

Electronics research and development for civil

· Microwave valves, design and use of: Report of

· Parametric amplifiers, symposium on: Report of

· Transmission aspects of communication networks,

Electronics research and development for civil

Electrostatic spraying of liquids and powders by R. A.

Ellison, A. J. Improved approach to electrical-

Ely, C. H. A., and Lambeth, P. J. Pollution test for

Electronics and Power

aviation, conference on: Report of 28

Electrostatically focused electron gun for hollow beau

366

aviation, conference on: Report of 28

for height-

26, 328

by B. H. Wilkinson and G. R. Stuart 420

uses of by A. R. Margetts 221

D. G. W. Mace 120

Electrohydraulic crushing 340

Electron aspects (see Forewords)

Electronic map drawing 322

Electronic ticket barrier 62

Electronic sector-scanning techniques

Ejectronics & Power: Corrections to

Electronics design by H. V. Beck 443

Constitution of (1964-65) 412

Address by: Summary of 398

Biographical note of 358

Representation on Council 455

Electronic reading 32

Electronics Division

Chairman, 1964-65:

symposium on 57

conference on 27

Coffee 349

machine theory

Premiums: Awards of 330

by H. L. Hartnagel 21

high-voltage insulators 114

conference on: Report of 287

Board of

325

57

Electricity on the farm 257

425

155

- rgency electric-power supplies by Elsie F. Hansford 43
- Engineering design, progress in 103
- Engineering faculty, the, of the University of Malaya by Chin Fung Kee 255 Engineering Institute of Canada: Reciprocal arrange-
- ments with IEE 329
- Examination (the Institution)
- Board of examiners for 1964 176 Board of examiners for 1965 456
- Instrumentation and Control to be included in
- Part III 455 Report of 1963 (October and November) examina-
- tion 137 Report of 1964 (April and June) examination 411

Excitation of large turbogenerators by V. Easton 81 Extraordinary Administrative Radio Conference (the) by C. F. Booth 152

F

- Faraday Medal: 42nd award, to J. R. Mortlock 170 Farming, use of closed-circuit television in 257 Father of p.c.m., the 344
- Ferranti (Sebastian de)-pioneer of power by A. R. Cooper 402
- Ferranti, S. Z. de Telecommunication 25 years from now 218
- Ferromagnetic films by C. E. Fuller 266 Ferromagnetic heat engine, theory of a by F. Brailsford
- 314 Film transmission on American television 383
- Fish in the cooling pond 295
- Fisheries, underwater observations and uses of electricity in by A. R. Margetts 221
- Flashover mechanism of polluted insulation by B. F. Hampton 113
- Flurscheim, C. H.
- · Address as chairman (1964-65) of Power Division: Summary of 399
- Biographical note of 358 Forewords
- · Adventure in the CEGB 139
- Are engineers educated? 139
- Assault on the towers 331
- Balancing the flow 99
- Best 'buy', the 375
- Changing pattern, the Cities like Venice 13 1
- 139
- Derby Day '64 217
- Dragon in Dorset 419 Fish in the cooling pond 295
- Future uncertain 177
- Gentle persuasion by the GPO 177 House journals 217
- One-off reactors not competitive 177
- Overseas engineer, the 375
- Paying bills for posterity 35
- Ranger pictures, the 295
- Schmusic—and colour—while you work 249 Scientific hyperbole 35
- Teaching industrial administration 63
- Technical reports 63
- Technical terminology 249

· Three cultures? 35 Frequencies for space 14

- Frequency invertors (adjustable) and their application to variable-speed drives by D. A. Bradley, C. D. Clarke, R. M. Davis and D. A. Jones 389

Fulford, J. F. Generation of v.l.f. waveforms 438 Fuller, C. E. Ferromagnetic films 266

Future of the battery-electric car by B. S. Hender 250 Future uncertain 177

G

- Gases (high-temperature), electrical conduction in by D. W. George 317
- Gauster, W. F. Development of superconducting magnets 64

Generation of v.l.f. waveforms by J. F. Fulford 438 Gentle persuasion by the GPO 177

Index 1964

- George, D. W. Electrical conduction in high-temperature gases 317
- Geothermal-rower project in New Zealand: Completion of 111
- German Federal Railway: Installation of electronic remote-control system for operation of substation 343
- German nuclear power station (second): Construction of 170
- Gibbons, P. E., Iredale, P., and Cooke-Yarborough, E. H. Proposed optoelectronic method of achiev-
- ing very fast digital logic 339 Gosland, L., Hollingsworth, P. M., Milne, A. G., Mochlinski, K., Arman, A. N., and Cherry,
- D. M. Influence of soil characteristics on h.v.cable power ratings 87 Gouriet, G. G.
- Address as chairman (1964-65) of Electronics Division: Summary of 398
- Biographical note of 358
- GPO, gentle persuasion by the 177
- Graduate and Student Premiums: Awards of 330 Graduate and Student Sections: Raising of age limit
- for Graduate members of 71 Graduates, age limit for 220, 329
- Graduates and Students Lecture
- New arrangements for 170, 176
- To be called 'The Silvanus P. Thompson Lecture' 326
- Graham Clark Lecture (10th), by Sir Edward Appleton 140
- Gray, D. Marine a.c. installations 59 Griffith, Miriam V. Electric thermal-storage heaters
- 64

H

- Halsey, R. J. The Commonwealth transpacific telephone cable COMPAC 379
- Hampton, B. F. Flashover mechanism of polluted insulation 113
- Hancox, R. Low-pressure gas-discharge switches 19 Hansford, Elsie F. Emergency electric-power supplies 43
- Hartnagel, H. L. Electrostatically focused electron gun for hollow beams 21
- electronic sector-Height-finding radar systems,
- scanning techniques for by D. E. N. Davies 368 ader, B. S. Future of the battery-electric car 250 H.F. arrays on hills by P. Knight, R. E. Davies and R. G. Manton 89
- High-energy accelerator for universities: Construction of 75
- High plant availability at Hunterston 408
- High-power transmission, overmoded rectange waveguide for by J. S. Butterworth, A. L. Cullen and P. N. Robson 16
- Hollingsworth, P. M., Milne, A. G., Mochlinski, K., Arman, A. N., Cherry, D. M., and Gosland, L. Influence of soil characteristics on h.v.-cable power ratings 87
- Honorary Membership: Election of P. Dunsheath 170
- Honours and distinctions conferred on members 98, 294, 374
- House journals 217
- Howard, P. R. New approaches to the undergrounding of main transmission networks 446 H.R.C.-fuse protection of high-voltage power circuits
- by E. Jacks 116 Humidity measurement, use of microwave refracto-
- metry in 303 Humphreys, O. W.
- · Address of inauguration as President (1964-65): Condensed version of 376
- Profile of 341
- Hunterston goes on load 111
- Hunterston nuclear generating station: Operation of 408
- H.V.-cable power ratings, influence of soil characteristics on by A. N. Arman, D. M. Cherry, L Gosland, P. M. Hollingsworth, A. G. Milne and K. Mochlinski 87
- Hyde, F. J Varactor-diode parametric amplifiers 197

I

IEC report, 1963 226

Jackson 40

Shepherd 369

Induction motors, analysis of dyn

and G. Williams 271

A. B. Pippard 195

K. Mochlinski 87

Accounts for 1963 240

Council (see Council) Examination (see Examination)

Officers of 246, 412

Prizes: Awards of 220

ments and nominations)

Annual Dinner: Report of 162

Annual General Meeting 137, 230

Annual Report for 1963-64 232

Institution, the

J

power circuits 116

generation

Delhi 40

K

formers 53

traction 160

- Improved approach to electrical-machine theory by A. J. Ellison 366
- Independent Television Authority: New television masts for 39
- India: Overseas Representative of the Council for 170 India, railway electrification in by H. D. Awasty 112 Indian Institute of Technology, Delhi by Sir Willis

in control systems by J. C. West, B. V. Javawant

Induction motors, Saturistor control of by W.

Induction motors (squirrel-cage), measurement of stray

Induction motors (squirrel-cage), stray losses in by K. K. Schwarz 307

Industry, superconductors in: 55th Kelvin Lecture, b

Influence of soil characteristics on h.v.-cable power

Informal Meetings Committee: Disbanding of 22

Finances of: Repayment of loan from bank 220

Representatives of, on other bodies (see Appoint-

Use of building by other bodies: Charges for 326

Instrumentation and Control: New subject to be

Insulation (polluted), flashover mechanism of by B. F. Hampton 113

International subscriber dialling: Extension of 203

Iredale, P., Cooke-Yarborough, E. H., and Gibbons

Jacks, E. H.R.C.-fuse protection of high-voltage

Jackson, W. D. Magnetohydrodynamic power

-a status report 258

Jackson, Sir Willis Indian Institute of Technology,

Jarvis, E. A. K. Control of motor voltage in a.c.

Jayawant, B. V., Williams, G., and West, J. C.

Jones, D. Advantages of resistive earthing 347 Jones, D. A., Bradley, D. A., Clarke, C. D., and

Davis, R. M. Adjustable frequency invertors an

their application to variable-speed drives 389

Jones, J. T., and Williams, N. J. Computer control of

Kee, Chin Fung The engineering faculty of the

Kerr, H. W., and Palmer, S. Large power trans-

459

University of Malaya 255 Kelvin Lecture (55th), by A. B. Pippard 195

motors in control systems 271

steelworks production 182 Jones, R. F. Radar meteorology 353

Analysis of dynamic performance of induction

ulators (high-voltage), pollution test for by C. H. A. Ely and P. J. Lambeth 114

P. E. Proposed optoelectronic method of achiev-ing very fast digital logic 339

included in IEE Examination 455

ratings by A. N. Arman, D. M. Cherry, L.

Gosland, P. M. Hollingsworth, A. G. Milne and

load losses in by B. M. Bird 400

- Kinniment, D. J., Edwards, D. B. G., and Lanigan, M. J. Developments in high-speed computer storage systems 319
- Knight, P., Davies, R. E., and Manton, R. G. H.F. arrays on hills 89

L

- Laboratory equipment in engineering departments of technical colleges, design and use of: Report of
- conference on 126 Laithwaite, E. R. Rotors for arch motors 42 Laithwaite, E. R., and Barwell, F. T. Linear induction
- motors for high-speed railways 100 Lambeth, P. J., and Ely, C. H. A. Pollution test for
- high-voltage insulators 114 Land navigation system (new automatic) 188
- Lanigan, M. J., Kinniment, D. J., and Edwards,
- D. B. G. Developments in high-speed comp storage systems 319 Laser system, first all-solid-state 325
- Laser used in ophthalmology 193
- Lawrenson, P. J., and Agu, L. A. Reluctance machines 264
- Lectures
- · Graduates and Students
- New arrangements for 170, 176 To be called 'The Silvanus P. Thompson Lecture' 326
- · Graham Clark (10th), by Sir Edward Appleton 140
- Kelvin (55th) by A. B. Pippard 195
- Letters of Commendation (Graduate and Student Premiums) 330
- Letters to the Editor (see Appendix A)
- Linear induction motors for high-speed railways by E. R. Laithwaite and F. T. Barwell 100
- Liquids and powders, electrostatic spraying of by R. A. Coffee 349 Load losses (stray) in squirrel-cage induction motors,
- measurement of by B. M. Bird 400 Local Centres and Sub-Centres
- · Benevolent Fund, Local Honorary Treasurers of 248. 418
- Committees, 1964-65: Constitution of 414
- · Officers of 246
- Locomotive speed indicator 226
- London (City of) completes s.t.d. 67 Lovegrove, H. J. Proportional-demand metering of
- electrical energy 300
- Low-pressure gas-discharge switches by R. Hancox 19

M

- Mace, D. G. W. Electricity in the service of road-traffic control 120
- Madras Overseas Committee: Honorary Secretary of 455
- Magnetohydrodynamic electrical power generation, international symposium on: Report of 323
- Magnetohydrodynamic power generation—a status report by W. D. Jackson 258
- Magnetostatic field of electric currents by G. B. Walker 126
- Malaya, the engineering faculty of the University of by Chin Fung Kee 255
- Manser, A. W., and Dell, R. Automatic driving of electric trains 104
- Manton, R. G., Knight, P., and Davies, R. E. H.F. arrays on hills 89
- Marconi, Popov, and the dawn of radiocommunication by R. L. Smith-Rose 76
- Margetts, A. R. Underwater observations and uses of electricity in fisheries 221
- Marine a.c. installations by D. Gray 50 Marine gyrocompass (transistorised): Production of
- Market research in electricity supply by J. G. Boggis
- 425
- May, E. J. P. Creative laboratory work in technical teaching 10
- Measurement of stray load losses in squirrel-cage induction motors by B. M. Bird 400

460

- Measuring distance electronically 29
- Medical and biological applications of electrical engineering by Ronald Woolmer 178 Medical automation by L. C. Payne 304
- Meetings
- Annual General 137, 230
- Council: Reports of 22, 71, 170, 220, 326
 Melling, C. T. Proposal of toast of guests at Institution Annual Dinner 164
- Members, announcements to 33, 62, 98, 137, 176, 216, 245, 294, 329, 374, 411, 456
- Members
- · Honours and distinctions conferred on 98, 294. 374
- Nigerian Student members: No reduction in annual subscriptions of 220 Membershin
- Age limit for Students 326, 329 Age-limit Graduates 220, 329
- Graduate and Student Sections: Raising of age limit for Graduate members of 71
- Noncorporate class of: Creation of 170
- Physics students and Institution membership 98
- Readmission to 170, 176, 220
- M.H.D. project (large-scale), plan for 282
- Microminiaturisation, symposium on: Report of 284 Microwave detectors, backward diodes as by H. V. Shurmer 316
- Microwave radiotelephone link: Use of, by British Railways 223
- Microwave refractometry, use of, in humidity measurement 303
- Microwave valves, design and use of: Report of conference on 27
- Midlands Electricity Board to use ripple control 291 Milne, A. G., Mochlinski, K., Arman, A. N., Cherry,
- D. M., Gosland, L., and Hollingsworth, P. M. Influence of soil characteristics on h.v.-cable power ratings 87
- Mochlinski, K., Arman, A. N., Cherry, D. M., Gosland, L., Hollingsworth, P. M., and Milne, A. G. Influence of soil characteristics on h.v.cable power ratings 87
- Mortlock, J. R.
- · Award of Faraday Medal to 170 Profile of 168
- Mumford, Sir Albert
- · Annual Dinner of the Institution: Response to toast of the Institution 163
- Changing pattern, the 1 Music, electrical synthesis of by A. Douglas 83

N

- Nasar, S. A. Unified theory of electrical machines 194
- National Electronics Research Council: Formation of 308
- Natural background electromagnetic radiation at 1-10 Gc/s by D. L. Croom 150
- Response to toast of the guests at Neil, John C. Annual Dinner 164 New approaches to the undergrounding of main trans-
- mission networks by P. R. Howard 446
- New deal for vector diagrams, a by M. G. Scroggie 47 New Zealand geothermal-power project: Completion of 111
- Nicholls, S. G., and Nourse, O. Effect of weather on performance of an 8mm radar 342
- Nicholson, H. Dynamic optimisation of a boiler 384 Nigerian Student members: No reduction in annual subscriptions of 220

Nimrod 204

- Nominations and appointments 34, 62, 137, 176, 374 Noncorporate class of membership: Creation of 170 Nourse, O., and Nicholls, S. G. Effect of weather on performance of an 8mm radar 342
 - 0
- Obituary (see Appendix B) Officers of the Institution 246, 412 Ogilvy, H. H. Radar on the railways 146

- One-off reactors not competitive 177
- Ophthalmology, laser used in 193
- Optoelectronic method (proposed) of achieving ery fast digital logic by E. H. Cooke-Yarborough, P. E. Gibbons and P. Iredale 339
- Overmoded rectangular waveguide for high-power transmission by J. S. Butterworth, A. L. Cuilen and P. N. Robson 16
- Overseas Branches, Committees, Joint Groups and Professional Groups
- Constitution of 417, 418
- Officers of 220, 247, 248, 418, 455
- Overseas engineer, the 375
- Overseas Premiums: Awards of 330
- Overseas Representatives of the Council 22, 71, 170, 248, 326, 418, 455
- Overseas service in developing countries by J. F. Bird 386

P

54

Power Division

Board of

Page turner for the disabled 399 Parametric amplifiers, symposium on: Report of 57

Physics students and Institution membership 98

Pippard, A. B. 55th Kelvin Lecture, on Super-

conductors in industry 195 Playfair, Sir Edward The computer and the use we

Pollution test for high-voltage insulators by C. H. A.

Post Office telephone service: Estimated growth of

Power circuits (high-voltage), h.r.c.-fuse protection of

· Electricity and space heating: Report of sym-

Power-system transient performance, computer studies

Power transformers, large by H. W Kerr and S.

Power transmission and distribution, waveguides for by H. E. M. Barlow 391 Prefabricated flexible conduit systems: Provision for,

in 14th edition of Wiring Regulations 62

Proceedings, the: New subscription rates for 411

341

Propagation coefficient of a cylindrical waveguide by

Proportional-demand metering of electrical energy by

Pulse-code modulation, application of, to speech

Pulse-code modulation: Interview with A. H. Reeves

Radar modulation and processing techniques, recent

Electronics and Power

developments in by R. Benjamin 435

Radar on the railways by H. H. Ogilvy 146

Radio alarms in unmanned substations 294

Pumped-storage investigations (CEGB) 265

Radar meteorology by R. F. Jones 353

Radio-relay aerials, airlift of 292

transmission in civil networks by R. O. Carter 2

President (1963-64) (see Mumford, Sir Albert)

President (1964-65) (see Humphreys, O. W.)

Prizes (Institution): Awards for 1963 220

Paying bills for posterity 35 Payne, L. C. Medical automation 304

Ely and P. J. Lambeth 114

Constitution of (1964-65) 412

Representation on Council 455

Address by: Summary of 399

Biographical note of 358

Premiums: Awards of 330

of by J. L. Dineley 17

make of it 205

by E. Jacks 116

· Chairman, 1964-65:

posium on 171

Palmer 53

455

344

R

Profiles

Premiums: Awards of 330

Dunsheath, P. 169 Humphreys, O. W.

Mortlock, J. R. 168

P. N. Robson 15

H. J. Lovegrove 300

Radio telescope (new): Construction of 170 Radiocommunication, Marconi, Popov, and the dawn of by R. L. Smith-Rose 76

Rail transport of coal 61

21

h.

'n

ld

d

- Railway electrification in India by H. D. Awasty 112 Railway Signal Engineers, Institution of: Subscription rates to Journal of 216
- Railways (high-speed), linear induction motors for by E. R. Laithwaite and F. T. Barwell 100
- Railways, radar on the by H. H. Ogilvy 146 Rainger, P. An electronic line-standards convertor 155
- Ranger pictures, the 295 Rayner, C. S. Some recent developments in automobile electrical equipment 432
- Readmission to membership 170, 176, 220 Recent developments in radar modulation and pro-
- cessing techniques by R. Benjamin 435 Records: New subscription rates for 411, 455
- Rectangular waveguides, attenuation in by F. A. Benson and D. H. Steven 15
- Reeves, A. H. (Inventor of p.c.m.): Interview with
- Regulations for the Electrical Equipment of Buildings (see Wiring Regulations)
- Regulations for the Electrical Equipment of Ships (see Ships) Reluctance machines by P. J. Lawrenson and L. A.
- Agu 264
- Remote control, contactless components for 343 Report, IEE Annual, 1963-64 232
- Representatives of the Institution on other bodies (see Appointments and nominations)
- Research Committee (IEE): Terms of reference of 170
- Resistive earthing, advantages of by D. Jones 347 Richards, D. L. Statistical properties of speech
- signals 158 Ripple control, use of by Midlands Electricity Board 291
- Road heating, electric by J. T. Sharples 189
- Road-traffic control, electricity in the service of by
- D. G. W. Mace 120 Roberts, B. C. The challenge of technological change
- 309 Robson, P. N. Propagation coefficient of a cylindrical
- waveguide 15 Robson, P. N., Butterworth, J. S., and Cullen, A. L. Overmoded rectangular waveguide for high-power
- transmission 16 Rotational hysteresis loss in silicon-iron by C. R. Boon
- and J. E. Thompson 124 Royal Navy, electrical engineering in the 321
- Royal Society: Recommendation regarding page charges for scientific journals 216

S

- Satellite instrumentation by R. L. F. Boyd 12 Saturistor control of induction motors by W. Shepherd
- 369
- Schmusic-and colour-while you work 249
- Scholarships: Awards of 411
- Schwarz, K. K. Stray losses in squirrel-cage induction motors 307
- Science Abstracts: New subscription rates for 455
- Science and engineering by O. W. Humphreys 376 Science and General Division
- Automatic production in electrical and electronic engineering, symposium on: Report of 26
- Board of
- Constitution of (1964-65) 413 Representation on Council 455
- · Chairman, 1964-65:
- **Biographical note of 358**
- Premiums: Awards of 330
- Science of near space, the: 10th Graham Clark Lecture, by Sir Edward Appleton 140
- Scientific hyperbole 35 Scientific journals, page charges for: Recommenda-tion of Royal Society 216
- Index 1964

- Scottish Electronics and Measurement Section: Symposium on microminiaturisation: Report of 284
- Scroggie, M. G. A new deal for vector diagrams 47 Secam, the colour performance of by G. B. Townsend 185
- Savern Bridge computing system for toll registration 378
- Sharples, J. T. Electric road heating 189 Shell Centre, electrical services at the by D. E. Bird
- and A. E. Gaster 46 Shen, D. W. C., and Stern, D. M. Character
- recognition by context-dependent transformations 440
- Shepherd, W. Saturistor control of induction motors 369
- Ships, Regulations for the Electrical Equipment of: Change in structure of committee on 245 Shurmer, H. V. Backward diodes as microwave
- detectors 316 SI units 29
- Silicon-iron, rotational hysteresis loss in by C. R. Boon and J. E. Thompson 124
- Silvanus P. Thompson Lecture: New name for Graduates and Students Lecture 326 SINS 32
- Smith-Rose, R. L. Marconi, Popov, and the dawn of radiocommunication 76
- Soil characteristics, influence of, on h.v.-cable power ratings by A. N. Arman, D. M. Cherry, L.
- Gosland, P. M. Hollingsworth, A. G. Milne and K. Mochlinski 87 Solar ponds by H. Tabor 296
- Some recent books (see Appendix C)
- Some recent developments in automobile electrical
- equipment by C. S. Ravner 432 Specialist reviews
- Ferromagnetic films by C. E. Fuller 266
- Waveguide survey by H. E. M. Barlow 332
- Speech signals, statistical properties of by D. L. Richards 158
- Speech transmission in civil networks, application of pulse-code modulation to by R. O. Carter 2
- Statistical properties of speech signals by D. L. Richards 158
- S.T.D. in City of London 67
- Steelworks production, computer control of by J. T. Jones and N. J. Williams 182
- Stern, D. M., and Shen, D. W. C. Character recognition by context-dependent transformations 440
- Steven, D. H., and Benson, F. A. Attenuation in rectangular waveguides 15
- Stray losses in squirrel-cage induction motors by K. K. Schwarz 307
- Stuart, G. R., and Wilkinson, B. H. Development of electrochemical machining techniques 420
- Students, age limit for 326, 329
 Subscriptions to publications of other engineering institutions 34, 216, 294, 456 Sudan: Overseas Representative of the Council for
- 455 Superconducting magnets, development of by W. F.
- Gauster 64 Superconductivity, research and development pro-
- gramme of (DSIR) 348 Superconductors in industry: 55th Kelvin Lecture, by
- A. B. Pippard 195 Switches, low-pressure gas-discharge by R. Hancox 19
- Symposia
- · Automatic production in electrical and electronic engineering: Report of 26
- Cathode-ray tubes, design and use of: Report of 325
- · D.C. amplifiers, recent advances in: Report of 57
- Electricity and space heating: Report of 171
- · Magnetohydrodynamic electrical power generation (international): Report of 323
- Microminiaturisation: Report of 284
- Parametric amplifiers: Report of 57
- Synchronous-generator voltage saturation by J. L. Dineley and K. J. Glover 79
- Synthetic testing of circuit breakers: Report on 395 System control by computer 405

- T
- Tabor, H. Solar ponds 296
- Tandem cold-rolling mills, automatic gauge control of by G. F. Bryant and M. H. Butterfield 20
- Tank gauging, data link for 270
- Tape, TV, and teachers: Report of conference on audio-visual teaching aids 406
- Taylor, W. K. Character recognition 6 Teaching aids (audio-visual), conference on: Report
- of 406 Teaching industrial administration 63
 - Technical Press: Publication of articles based on IEE papers 456
- Technical publications 125, 174, 292, 374
- Technical reports 63

Ferranti 218

314

Griffith 68

Three cultures? 35

for 378

185

113

100

U

of 378

194

V

197

Vector diagra

Computation 22

of the Council for 71

by E. C. Cherry 410

Television masts for u.h.f. 39

Technical teaching, creative laboratory work in by E. J. P. May 10

Telecommunication 25 years from now by S. Z. de

Teletraffic Congress (4th International): Report of,

Television (closed circuit) installed at colliery 407

Terrington, D. G. Development of secondary sur-

Theory of a ferromagnetic heat engine by F. Brailsford

Thermal-storage heaters (electric) by Miriam V.

Thompson, J. E., and Boon, C. R. Rotational

Toll registration, Severn Bridge computing system

Townsend, G. B. The colour performance of Secam

Transistorised marine gyrocompass: Production of

Transmission aspects of communication networks,

Transmission networks (main), new approaches to the

Truscott, D. N. Computers in control of processes

Turbogenerators (large), excitation of by V. Easton 81

UKAEA: Research station (new) at Daresbury 34

Undergrounding of main transmission networks, new

Underwater observations and uses of electricity in

Unified theory of electrical machines by S. A. Nasar

United Kingdom Automation Council: New name

United States of America: Overseas Representative

University courses—a suitable education for the modern world? by D. B. Welbourn 51, 96

Varactor-diode parametric amplifiers by F. J. Hyde

Victoria and Tasmania, Overseas Representation of the Council for: Retirement of 455

ums, a new deal for by M. G. Scroggie 47

461

Universities Research Reactor, the 302, 372

of British Conference on Automation and

approaches to by P. R. Howard 446

fisheries by A. R. Margetts 221

undergrounding of by P. R. Howard 446

Thermionic-energy-convertor module (new) 328

hysteresis loss in silicon-iron 124

conference on: Report of 287

UK-Denmark cable: Opening of 401 Underground cable (Waltham Cross): Completion

veillance radar for air-traffic control 428

Television (closed-circuit), use of in farming 257

Television-phone (first): Installation of 293

Ternary computer, the by W. Alexander 36

Technical terminology 249 Technological change, the challenge of by B. C. Roberts 309

Video-map system (new) for air-traffic control 263 V.L.F. waveforms, generation of by J. F. Fulford 438 Vuorinen, P. A., and Barlow, H. E. M. Waveguide structures for low-loss transmission around sharp

bends in circular waveguide 22

- W
- Walker, G. B. Magnetostatic field of electric currents 126 Waltham Cross underground cable: Completion of
- 378 Waveguide (cylindrical), propagation coefficient of a
- by P. N. Robson 15 Waveguide (overmoded rectangular) for high-power transmission by J. S. Butterworth, A. L. Cullen
- and P. N. Robson 16 Waveguide structures for low-loss transmission around
- sharp bends in circular waveguide by P. A. Vuorinen and H. E. M. Barlow 22 Waveguide survey by H. E. M. Barlow 332
- Waveguides for power transmission and distribution by
- H. E. M. Barlow 391 Waveguides (rectangular), attenuation in by F. A.
- Benson and D. H. Steven 15 Weather, effect of, on performance of an 8mm radar
- by O. Nourse and S. G. Nicholls 342 Welbourn, D. B. University courses-a suitable
- education for the modern world? 51, 96 West, J. C., Jayawant, B. V., and Williams, G. Analysis of dynamic performance of induction
- motors in control systems 271 Western Australia Overseas Committee: Election of
- Honorary Secretary of 220 Western Centre Electronics Section: Formation of 326
- Wilkinson, B. H., and Stuart, G. R. Development of electrochemical machining techniques 420
- Williams, G., West, J. C., and Jayawant, B. V. Analysis of dynamic performance of induction motors in control systems 271
- Williams, N. J., and Jones, J. T. Computer control of steelworks production 182
- Wiring Regulations
- Amendments (1963) to 13th edition 33
- Committee on: Amendment of constitution of 245 Prefabricated flexible conduit systems: Provision for in 14th edition 62
- Woolmer, R. Medical and biological applications of electrical engineering 178

Appendix A

Letters to the Editor

- · Ackery, E. M. Symposium on electricity and space heating 280
- Aitken, I. M. E. Assault on the towers 394
- Alexander, W. The ternary computer 128
- Allen, P. H. G. Status of the engineer 453
- Allison, A. A. Artificial courses 166 Atcherley, J. D. Unifying the profession 280
- Banner, E. H. W. Why 'Associate'? 228
- Ben Uri, J. Engineering education-a proposal 94
- Bergen, S. A. Research, development and innovation 25
- Bertele, H. V. The clock paradox 24
- Bolton, D. J. Paying bills for posterity 127
- Bourne, R. A new deal for vector diagrams 132
- Boxall, C. W. Linear traction 50 years ugo 274
- Brierley, P. Librarian's nightmare 282
- Brookes, M. M. Transfer to Member 93
- Bruce, C. E. R. Cosmic electrical discharges: 13-Extremely strong cosmic radio sources 56
- 14-Theories of radio galaxies 93
- 15-Galactic evolution 166
- 16-Solar magnetic fields 279
- 17-Whiskers in space? 361
- Carmichael, I. F. Power factor—are our definitions good enough? 273 Carmichael, I. F. Thyristor preferred 92
- · Cattermole, J. D. Electrical synthesis of music 167
- 462

- Letters to the Editor (continued)
- · Clausen, H. University courses-a suitable education for the modern world? 134

Letters to the Editor (continued)

electrical energy 393

ments: terminology 311

propagation 94

relativity 362

motorist 361

55

heating 280

radiocommunication 277

Peach, E. R. Associates 451

radiocommunication 313

. Lewis, N. W. Proposed subcarrier pilot for

NTSC-type colour television 207

Lloyd, B. E. Status of the engineer 281 Lovegrove, H. J. Proportional-demand metering of

· Lynch, A. C. R.M.S. (or mean) volts 135

Mahalingham, N. Why 'Associate'? 211

Mason, J. H. Discharge detection and measure-

Mederer, R. A new deal for vector diagrams 130

Meredith, L. A. Power factor-are our definitions good enough? 274

Morris, N. M. A new deal for vector diagrams 131

Nairne, P. J. Reduction of transformer noise 393

Newton, C. E. A new deal for vector diagrams 279

· Palacios, J. Inverse-square law in the theory of

Palmer, T. A new deal for vector diagrams 279
 Palmer, T. R.M.S. (or mean) volts 360

· Payne, E. A. Marconi, Popov, and the dawn of

· Perrin, J. F. Marconi, Popov, and the dawn of

Pcters, J. H. C. Status of the young engineer 165 Petley, B. W. R.M.S. (or mean) volts 135 Piette, I. R. Why 'Associate'? 93 Potok, M. H. N. 'Do-it-yourself' science 393

Powell, W. H. Status of the young engineer 312

Rathbone, M. P. Whither the Proceedings? 394

Rayner, C. S. Electronics under the bonnet 281 Read, J. C. Early British steel-tank rectifiers 55 Read, J. C. Silicon controlled rectifiers 24

Rickard, J. K. Unifying the profession 280

Robins, J. M. The ternary computer 128

Rosser, W. G. V. Spot the fallacy 211

Rudd, D. Paying bills for posterity 127

Schiller, P. The present state of the supply industry

· Schiller, P. Symposium on electricity and space

· Scroggie, M. G. A new deal for vector diagrams

Sharp, P. E. M. The industrial designer 167

Shaw, G. L. Goethe as scientist 311 Shrubb, K. F. Wrapping IEE publications 360

. Smith-Rose, R. L. Marconi, Popov, and the dawn

Smithson, J. G. Linear traction 50 years ago 229

Stephenson, L. M. Cosmological models 276

· Stephenson, L. M. Gravity-a negative-radiation-

Stephenson, L. M. Interpretation of the cosmo

· Stephenson, L. M. Source theory of electro-

228

Electronics and Power

Ruderfer, M. Spot the fallacy 275 Saunders, H. Patents and the engineer 92 Sayers, D. J. Why 'Associate'? 313

Schwelb, O. Spot the fallacy 211

Simpson, J. Electricity from waste

Smith, D. G. Associates 451

pressure effect? 91

logical red shift 312

Sims, H. G. Technician engineers 359

Skelton, D. E. Status of the engineer 453

Smith, J. Whitby. Why 'Associate'? 93

of radiocommunication 128, 276

magnetic propagation 23, 94, 228 Stevenson, B. Y. Clear writing 229

· Stretch, K. L. Paying bills for posterity 127

Sud, Y. D. Status of the young engineer

Thomas, G. B. Technician engineers 392 · Thompson, A. F. Technical terminology 394

· Tranter, A. Electrical engineering drawing 169

133, 209, 278, 279, 452

Roddy, D. Phasors and vectors 364
 Ross, I. M. Keeping informed 452

Ross, W. Associates 280

· Robbins, R. M. Guidance for the fog-bound

Poynter, R. A. Why 'Associate'? 227

Raczko, H. Transfer to Member 211

· Midgley, D. Source theory of electromagnetic

Morgan, J. T. Status of the engineer 229

Lyon, G. Proliferation of sibilants 24 McLaren, S. G. Power factor-are our definitions good enough? 312

- · Clifford, P. M. R.M.S. (or mean) volts 229
- · Cobbe, D. W. R. The industrial designer 55, 167 · Connelly, D. A new deal for vector diagrams 167
- · Cooper, M. V. L. Scientific hyperbole 135
- Corbyn, D. B. Power factor—are our definitions good enough? 274
- · Cox, D. W. Electrical engineering drawing 275
- · Cranmer, J. M. The industrial designer 128
- · Crawshaw, J. J. St. A. Patents and the engineer 24
- · Cronin, B. A. Marconi, Popov, and the dawn of radiocommunication 167
- Crook, E. H. Why 'Associate'? 129 · Cruickshank, A. J. O. A new deal for vector
- diagrams 131 · Cullwick, E. G. Inverse-square law in the theory of
- relativity 451 · Davie, J. A. W. Proportional-demand metering of electrical energy 393 Davies, F. L. Why 'Associate'? 165 Dawkins, B. Technician engineers 360

- · Dawson, J. G. A reproducible second 128
- Demetsopoullos, I. C. Spot the fallacy 168
- Doran, W. E. Why 'Associate'? 394
- · Dougharty, W. Librarian's nightmare 363
- Draper, A. A new deal for vector diagrams 129 Dunman, F. R. Electrical synthesis of music 167
- 93
- Dunn, A. D. Why 'Associate'?
- Essen, L. Spot the fallacy 169
- Evans, J. H. R.M.S. (or mean) volts 229 Everitt, L. H. R. A new deal for vector diagrams 278
- Falconer, J. Importance of good timing 208
- Feinberg, R. A new deal for vector diagrams 132 Felton, A. Power factor-are our definitions good enough? 273
- Felton, A. R.M.S. (or mean) volts 361 Flux, R. W. Adventure in the CEGB 229
- Foord, T. R. Effective teaching 393
- Gallizia, E. Early British steel-tank rectifiers 129
- Gamlin, J. Are engineers educated? 227
 Garratt, G. R. M. Marconi, Popov, and the dawn of radiocommunication 276
- Golding, C. A new deal for vector diagrams 208
- Gray, C. B. A new deal for vector diagrams 130
- Groom, R. F. Status of the engineer 360 Hall, K. S. Teaching active network theory 211
- Harland, J. L. Technician engineers 392
- Hersch, W. Beam-positioning radar 134
- Hickling, G. H., and Hawley, R. Discharge
- detection and measurements terminology 365 · Higgins, C. Research, development and innovation 25
- Hirschmann, P. High-voltage load control 362
- Hirst, A. W. C. Are engineers educated? 313 Hirst, A. W. C. Clear writing 165 Hobbins, H. Why 'Associate'? 55

- Holttum, W. Patents and the engineer 24 Hopkins, D. A. A new deal for vector diagrams
- 361 Horwood, H. Impedance triangle 279
- Howe, J. The industrial designer 92
- Hughes, H. M. Three cultures? 135
- Humphrey, W. E. Are engineers educated? 227
- Spot the fallacy 134 Jagger, G.
- Josephs, H. J. Marconi, Popov, and the dawn of radiocommunication 210 359
- . Kapp, R. O. Interpretation of the cosmological red shift 365
- Kendon, R. D. Ballistic theory of light 166 Kerruish, N. Source theory of electromagnetic
- propagation 228 · Kershaw, C. A. Training for welding 91 · Kilvington, T. Letter symbols to designate micro-

Lackey, C. H. A new deal for vector diagrams 129

· Lewin, L. Letter symbols to designate microwave

210

wave bands 281

bands 228, 312

Lander, J. E. Patents 55

. Laws, R. A. Why 'Associate'?

Knott, G. The clock paradox 23

. Lavelle, P. M. Status of the engineer 281

Lee, J. K. V. Why 'Associate'? 210

- Letters to the Editor (continued)
- Waldron, R. A. Goethe as scientist 452
- Waldron, R. A. Spot the fallacy 92, 168, 275
- Walker, J. H. Proliferation of degrees 211 Ware, R. M. Reliability of FeSi2 166
- Watson, S. N. Proposed subcarrier pilot for NTSC-type colour television 275
- Weaving, R. J. Spot the fallacy 134 Webster, W. A. R.M.S. (or mean) volts 452
- Welbourn, D. B. University courses-a suitable
- education for the modern world? 135 . Wells, G. I., and Plummer, D. Connections 208
- Wells, R. Power factor—are our definitions good enough? 211, 364
- West, R. A. A new deal for vector diagrams 132 Whitehead, E. D. Technician engineers 392 Wilde, J. P. Why 'Associate'? 165

- Wilkins, E. L. Why 'Associate'? 93 Williams, C. E. Research, development and innovation 92

- Withams, K. Knowing the right people 313
- Woodrow, R. A. Why x subjects? 278

Appendix **B**

Obituary

Contains	
· Abbott, J. R. 86	· O'Neill, J. W. 288
· Adney, W. S. 25	· Payne-Gallway, Sir
· Atkins, J. W. 371	Reginald 172
· Aust, J. H. 243	· Pearce, F. J. 86
· Barton, H. H. C. 172	· Peirson, G. F. 60
· Bartram, W. F. B. 28	8 · Phillips, F. P. 456
· Bellamy, D. 288	· Railing, Sir Harry 25
· Clarke, K. J. 243	Raworth, A. B. 371
· Clegg, P. 288	· Rogers, T. 216
· Crompton, C. 172	· Rommel, F. E. 371
· Dowsett, H. M. 172	· Rowcroft, E. B. 216
· Esmond, L. P. 172	· Ryder, P. G. 371
· Fyfe, L. J. G. 172	· Sanders, G. 288
· Gardner, A. 60	· Scott, J. H. 172
· Gould, C. 172	· Sear, A. J. 243
· Graham, A. 172	· Shipley, J. F. 371
· Grant, R. M. W. 371	· Sills, G. F. 216
· Grossett, J. 25	· Stowell, P. d'E. 371
· Hardwick, J. 60	· Swift, H. H. 371
Harrison, H. H. 25	· Thomas, T. R. 288
· Hogben, E. J. 456	· Thurston, A. P. 288
· Lackey, C. H. W. 371	· Torry, R. G. 371
- Lawson, C. J. V. 25	· Venters, J. 288
· Lazarus, E. G. 216	· Vincent, J. D. A. 456
· Lovell, W. D. 172	· Wadeson, M. 173
· Mann, G. H. 86	· Watson, A. H. St. C. 86
Martin, R. H. 60	· White, E. S. 288
· Mole, J. H. 86	· Williams, J. D. 173

Appendix C

Some recent books

- · Alt, F. L., and Rubinoff, M. (editors) Advances in computers-Vol. 4 214
- · Anempodistov, V. P., Kasharskii, E. G., and Urusov, I. D. Problems in the design and development of 750 MW turbogenerators 58
- · Arbib, M. A. Brains, machines and mathematics 290
- · Avondo-Bodino, G. Economic applications of the theory of graphs 173
- Barker, T. C., and Robbins, M. A history of London Transport. Vol. 1-The nineteenth century 58
- Beveridge, A. Apprenticeship now 30
- Bickley, W. G., and Thompson, R. S. H. G. Matrices, their meaning and manipulation 290
- · Binns, K. J., and Lawrenson, P. J. Analysis and computation of electric and magnetic field problems 95
- Boast, W. B. Vector fields 290
- · Bosse, G. Einführung in die Synthese elektrischer Siebschaltungen mit vorgeschriebenen Eigenschaften 30
- · Botvinnik, M. M. Asynchronized synchronous machines 289
- Brown, W. F., Jun. Micromagnetics 58
- · Broxmeyer, C. Inertial navigation systems 214 · Central Electricity Generating Board Modern
- power station practice 136 · Central Electricity Generating Board Modern power station practice, vol. 4 450
- Chelyustkin, A. B. The application of computing technique to automatic control systems in metallurgical plant 215
- · Chen, W. H. Linear network design and synthesis 449
- · Coombe, R. A. (editor) Magnetohydrodynamic generation of electrical power 291
- · Dearnaley, G., and Northrop, D. C. Semiconductor counters for nuclear radiations 30 · Doganovskii, S. A., and Ivanov, V. A. Con-
- trolled-delay devices 95 · Draper, A. Electrical circuits (including machines)
- 450
- · Edelmann, H. Berechnung elektrischer Verbundnetze 136
- · Edwin, G., and Roddam, T. Principles of feedback design 136
- · Euler, J. Neue Wege zur Stromerzeugung 95 · Flegg, H. G. Boolean algebra and its application 291
- · Gartenhaus, S. Elements of plasma physics 290 · Gibson, A. F., and Burgess, R. E. (editors) Pro-
- gress in semiconductors-Vol. 8 374 · Gracey, G. C. Overhead electrical power lines 58
- · Guillemin, E. A. Theory of linear physical systems 58
- · Haas, G. Fundamentals and components of electronic digital computers 289
- · Harrer, J. M. Nuclear reactor control engineering 95
- · Head, J. W. Mathematical techniques in electronics and engineering analysis 289

Some recent books (continued)

- · Jones, D. S. The theory of electromagnetism 215
- · Kelso, J. M. Radio ray propagation in the ionosphere 373
- · Keonjian, E. Microelectronics: theory, design and fabrication 59
- Kneller, E. Ferromagnetismus 289
- · Krassner, G. N., and Michaels, J. V. Introduction to space communication systems 450
- · Levine, L. Methods for solving engineering problems using analog computers 450
- Llewellyn, R. W. Linear programming 373 · Lynn, J. W. Tensors in electrical engineering 96
- Malan, D. J. Physics of lightning 96
- . Margenau, H., and Murphy, G. M. The mathematics of physics and chemistry 289
- Mee, C. D. The physics of magnetic recording 136
- · Melcher, J. R. Field-coupled surface waves 174 . Merriam, C. W. Optimization theory and the
- design of feedback control systems 329 Moll, J. L. Physics of semiconductors 450
- · Morse, A. C. Electrohydraulic servomechanisms 136
- Myers, B. R. North of the Border 290
- . Nergaard, L. S., and Glicksman, M. (editors) Microwave solid-state engineering 243
- Pieruschka, E. Principles of reliability 173 Podszeck, H. K. Carrier communication over power lines 174
- · Potter, J. C., and Fich, S. J. Theory of networks
- and lines 173 Roberts, R. W., and Vanderslice, T. A. Ultrahigh
- vacuum and its applications 215 . Rosser, W. G. V. An introduction to the theory of
- relativity 373 . Rschevkin, S. N. The theory of sound 215
- · Salow, H., Beneking, H., Krömer, H., and Von Münch, W. Der Transistor-physikalische und technische Grundlagen 59
- · Schlabach, T. D., and Rider, D. D. Printed and integrated circuitry 30
- Scroggie, M. G. Essays in electronics 59
- Siegman, A. E. Microwave solid-state masers 173 · Simonyi, K. Foundations of electrical engineering 96
- . Sims, G. D., and Stephenson, I. M. Microwave tubes and semiconductor devices 30
- Smakula, A. Einkristalle 59
- Spratt, H. G. M. Magnetic tape recording 329 Stanley, J. K. Electrical and magnetic properties of
- metals 30 Steinbuch, K. (editor) Taschenbuch der Nachrich-
- tenverarbeitung 290 Stigant, S. A. Matrix and tensor analysis in electrical network theory 215
- Stuhlinger, E. Ion propulsion for space flight 449 · Susini, A. Filters, amplifiers and servomechanisms
- 96
- . Tagg, G. F. Earth resistances 329
- . Tocher, K. D. The art of simulation 291 Weber, S. Modern digital circuits 450
- Wooldridge, R., and Ratcliffe, J. F. An intro-
- duction to Algol programming 96 Zadeh, L. A., and Desoer, C. A. Linear system theory: the state space approach 243
- · Zelinger, G. Basie matrix algebra and transistor circuits 96